

10/529022  
JC17 Rec'd PCT/PTO 24 MAR 2005Amendments to the Claims

1. (currently amended): A fibre for spunbonded non-woven fabrics comprising a propylene polymer composition (A) having an MFR value (MFR (1)) from 6 to 150 g/10 min and being selected from:

i) a crystalline propylene random copolymer or a crystalline propylene polymer composition selected from

a) a copolymer or polymer composition containing at least 0.8% by weight of ethylene and optionally at least one of ~~one or more~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by temperature rising elution fractionation (TREF) with xylene to the xylene soluble fraction at room temperature higher than 8; and

b) a copolymer or polymer composition containing more than 2.5 wt% by weight of ethylene and optionally at least one of ~~one or more~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 153° C or higher, a content of fraction soluble in xylene at room temperature lower than 10% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 4; and

ii) a crystalline propylene polymer composition having a melting temperature of 153° C or higher, a content of fraction soluble in xylene at room temperature lower than 10% by weight; the said composition containing at least one of (1) at least 0.64 wt% of ethylene and (2) and/or ~~and/or~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin recurring unit and comprising (percent by weight):

I) 20-80%, of a crystalline propylene homopolymer or crystalline propylene random copolymer containing at least one of (i) up to 1.5% by weight of ethylene and (ii) and/or ~~and/or~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin; and

- II) 20-80% of a crystalline propylene random copolymer selected from:
  - IIa) a copolymer of propylene with 0.8 to 10% by weight of ethylene; provided that the difference in the ethylene content between polymer I) ~~(I)~~ and polymer IIa) ~~(IIa)~~ be at least 0.8 percentage unit with respect to the weight of the (co)polymer concerned;
  - IIb) a copolymer of propylene with 1.5 to 18% by weight of a C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and optionally ethylene; provided that the difference in the comonomer content between polymer I) ~~(I)~~ and polymer IIb) ~~(IIb)~~ ~~is be~~ at least 1.5 percentage units with respect to the weight of the (co)polymer concerned; and
  - IIc) a mixture of copolymer IIa) ~~(IIa)~~ and copolymer IIb) ~~(IIb)~~.
- 2. (currently amended): The fibre of claim 1 wherein composition (A) is polymer composition ii) ~~(ii)~~ having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 5% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by fractionation with xylene to the xylene soluble fraction at room temperature higher than 8; said composition ii) ~~(ii)~~ comprising (percent by weight):
  - I) 20-80% of a crystalline propylene homopolymer or a and/or crystalline propylene random copolymer containing at least one of (i) up to 1.5% by weight of ethylene and (ii) ~~and/or~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin; and
  - II) 20-80% of a crystalline random copolymer selected from:
    - IIa) a copolymer of propylene with 0.8 to 5% by weight of ethylene; provided that the difference in the ethylene content between polymer I) ~~(I)~~ and polymer IIa) ~~(IIa)~~ be at least 0.8 percentage unit with respect to the weight of the (co)polymer concerned;
    - IIb) a copolymer of propylene with 1.5 to 12% by weight of a C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and optionally ethylene; provided that the difference in the comonomer content between polymer I) ~~(I)~~ and polymer IIb) ~~(IIb)~~ ~~is be~~ at least 1.5 percentage units with respect to the weight of the (co)polymer concerned; and
    - IIc) a mixture of copolymer IIa) ~~(IIa)~~ and copolymer IIb) ~~(IIb)~~.

3. (currently amended): The fibre of claim 1 ~~claims 1 and 2~~ wherein composition (A) is obtained ~~obtainable by~~ ~~subjecting to~~ chemical degradation of a precursor polymer composition (B) having an MFR value (MFR (2)) of from 0.5 to 50 g/10 min, provided that the ratio of MFR (1) to MFR (2) is ~~be~~ from 1.5 to 60.
4. (currently amended): The fibre of claim 1 ~~claims 1 to 3~~ wherein the difference in the ethylene content between polymer I) ~~(I)~~ and polymer IIa) ~~(IIa)~~ is at least 1 percentage unit with respect to the weight of the (co)polymer concerned.
5. (currently amended): A melt spin process for the production of a fibre for spunbonded non-woven fabrics comprising the fibres according to claims 1 to 4 ~~characterised in that it is subjected to the process~~ a propylene polymer composition (A) having MFR (1) values from 6 to 150 g/10 min and being selected from:
  - i) a crystalline propylene random copolymer or a crystalline polymer propylene polymer composition selected from:
    - a) a copolymer or polymer composition containing at least 0.8% by weight of ethylene and optionally at least one of ~~one or more~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 8; and
    - b) a copolymer or polymer composition containing more than 2.5 to 4.5 wt% by weight of ethylene and optionally at least one of ~~one or more~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 153° C or higher, a content of fraction soluble in xylene at room temperature lower than 10% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 4; and
  - ii) a crystalline propylene polymer composition having a melting temperature of 153° C or higher, a content of fraction soluble in xylene at room temperature lower than 10% by weight; the said composition containing at least one of (1)

at least 0.64 wt% of ethylene and (2) and/or ~~C<sub>4</sub>-C<sub>10</sub>~~  $\alpha$ -olefin recurring unit and comprising (percent by weight):

- I) 20-80% of a crystalline propylene homopolymer or crystalline propylene random copolymer containing at least one of (i) up to 1.5% by weight of ethylene and (ii) and/or ~~C<sub>4</sub>-C<sub>10</sub>~~  $\alpha$ -olefin; and
- II) 20-80% of a crystalline propylene random copolymer selected from:
  - IIa) a copolymer of propylene with 0.8 to 10% by weight of ethylene; provided that the difference in the ethylene content between polymer I) ~~(I)~~ and polymer IIa) ~~(IIa)~~ is be at least 0.8 percentage unit with respect to the weight of the (co)polymer concerned;
  - IIb) a copolymer of propylene with 1.5 to 18% by weight of a C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and optionally ethylene; provided that the difference in the comonomer content between polymer I) ~~(I)~~ and polymer IIb) ~~(IIb)~~ is be at least 1.5 percentage units with respect to the weight of the (co)polymer concerned; and
  - IIc) a mixture of copolymer IIa) ~~(IIa)~~ and copolymer IIb) ~~(IIb)~~.

6. (currently amended): A propylene polymer composition having MFR values (MFR (1)) from 6 to 150 g/10 min, the ~~said~~ composition comprising (percent by weight):

- I) 20-80% of a crystalline propylene homopolymer or crystalline propylene random copolymer containing at least one of (i) up to 1.5% by weight of ethylene and (ii) and/or ~~C<sub>4</sub>-C<sub>10</sub>~~  $\alpha$ -olefin and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 8; and
- II) 20-80% of a crystalline propylene random copolymer selected from:
  - IIa) a copolymer of propylene with 0.8 to 10% by weight of ethylene; provided that the difference in the ethylene content between polymer I) ~~(I)~~ and polymer IIa) ~~(IIa)~~ is be at least 0.8 percentage unit with respect to the weight of the (co)polymer concerned;

IIb) a copolymer of propylene with 1.5 to 18% by weight of a C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and optionally ethylene; provided that the difference in the comonomer content between polymer I) (~~I~~) and polymer IIb) (~~IIb~~) ~~is be~~ at least 1.5 percentage units with respect to the weight of the (co)polymer concerned; and

IIc) a mixture of copolymer IIa) (~~IIa~~) and copolymer IIb) (~~IIb~~);

said polymer composition being obtained ~~being obtainable~~ by way of chemical degradation of a precursor polymer composition (B) having MFR (2) values of from 0.5 to 50 g/10 min, provided that the ratio of MFR (1) to MFR (2) ~~is be~~ from 1.5 to 60.

7. (currently amended): A crystalline propylene random copolymer or a crystalline propylene polymer composition selected from:
  - a) a copolymer or polymer composition containing at least 0.8% by weight of ethylene and optionally at least one of ~~one or more~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 8; and
  - b) a copolymer or polymer composition containing more than 2.5 to 4.5 wt% by weight of ethylene and optionally at least one of ~~one or more~~ C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 153° C or higher, and a ratio of a content ~~of fraction~~ collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 4; said copolymer or composition having a MFR value (MFR (1)) and being obtained ~~obtainable~~ by way of chemical degradation of a precursor polymer composition (B) having MFR (2) values of from 0.5 to 50 g/10 min, provided that the ratio of MFR (1) to MFR (2) ~~is be~~ from 1.5 to 60.
8. (currently amended): A process for the preparation of a propylene polymer composition having MFR values (MFR (1)) from 6 to 150 g/10 min, the composition comprising (percent by weight):

I) 20-80% of a crystalline propylene homopolymer or crystalline propylene random copolymer containing at least one of (i) up to 1.5% by weight of ethylene and (ii) C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 8; and

II) 20-80% of a crystalline propylene random copolymer selected from:

IIa) a copolymer of propylene with 0.8 to 10% by weight of ethylene; provided that the difference in the ethylene content between polymer I) (~~I~~) and polymer IIa) is at least 0.8 percentage unit with respect to the weight of the (co)polymer concerned;

IIb) a copolymer of propylene with 1.5 to 18% by weight of a C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and optionally ethylene; provided that the difference in the comonomer content between polymer I) and polymer IIb) be at least 1.5 percentage units with respect to the weight of the (co)polymer concerned; and

IIc) a mixture of copolymer IIa) and copolymer IIb);

said polymer composition being obtained by way of chemical degradation of a precursor polymer composition (B) having MFR (2) values of from 0.5 to 50 g/10 min, provided that the ratio of MFR (1) to MFR (2) is from 1.5 to 60; the process

~~the polymer composition of claim 6 or 7~~ comprising the following stages:

- 1) preparing the ~~previously said~~ precursor polymer composition (B) by polymerising the monomers in one or more sequential stages, operating in each stage in the presence of the polymer formed and the catalyst used in the preceding stage, and dosing ~~a~~ the molecular weight regulator in such amounts as to obtain ~~the an~~ the MFR (2) value for the precursor polymer composition (B) of from 0.5 to 50 g/10 min; and

- 2) subjecting the precursor composition (B) obtained in stage (1) to a degradation treatment with a degradation ratio, in terms of ratio of MFR (1) to MFR (2), from 1.5 to 60.
9. (currently amended): A spunbonded non-woven fabric comprising ~~the fibres of claim 1~~ fibres comprising a propylene polymer composition (A) having an MFR value (MFR (1)) from 6 to 150 g/10 min and being selected from:
- i) a crystalline propylene random copolymer or a crystalline propylene polymer composition selected from
    - a) a copolymer or polymer composition containing at least 0.8% by weight of ethylene and optionally at least one of C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by temperature rising elution fractionation (TREF) with xylene to the xylene soluble fraction at room temperature higher than 8; and
    - b) a copolymer or polymer composition containing more than 2.5 wt% by weight of ethylene and optionally at least one of C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 153° C or higher, a content of fraction soluble in xylene at room temperature lower than 10% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 4; and
  - ii) a crystalline propylene polymer composition having a melting temperature of 153° C or higher, a content of fraction soluble in xylene at room temperature lower than 10% by weight; the said composition containing at least one of (1) at least 0.64 wt% of ethylene and (2) C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin recurring unit and comprising (percent by weight):
    - I) 20-80%, of a crystalline propylene homopolymer or crystalline propylene random copolymer containing at least one of (i) up to 1.5% by weight of ethylene and (ii) C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin; and
    - II) 20-80% of a crystalline propylene random copolymer selected from:

IIa) a copolymer of propylene with 0.8 to 10% by weight of ethylene; provided that the difference in the ethylene content between polymer I) and polymer IIa) be at least 0.8 percentage unit with respect to the weight of the (co)polymer concerned;

IIb) a copolymer of propylene with 1.5 to 18% by weight of a C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefin and optionally ethylene; provided that the difference in the comonomer content between polymer I) and polymer IIb) be at least 1.5 percentage units with respect to the weight of the (co)polymer concerned; and

IIc) a mixture of copolymer IIa) and copolymer IIb).

10. (new): A process for the preparation of a crystalline propylene random copolymer or a crystalline propylene polymer composition having a MFR value (MFR (1)) selected from:

- a) a copolymer or polymer composition containing at least 0.8% by weight of ethylene and optionally at least one of C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 155° C or higher, a content of fraction soluble in xylene at room temperature lower than 4% by weight and a value of the ratio of the polymer fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 8; and
- b) a copolymer or polymer composition containing more than 2.5 to 4.5 wt% by weight of ethylene and optionally at least one of C<sub>4</sub>-C<sub>10</sub>  $\alpha$ -olefins and having a melting temperature of 153° C or higher, and a ratio of a fraction collected at the temperature range from 25° to 95° C by TREF with xylene to the xylene soluble fraction at room temperature higher than 4;

said copolymer or composition being obtained by way of chemical degradation of a precursor polymer composition (B) having MFR (2) values of from 0.5 to 50 g/10 min, provided that the ratio of MFR (1) to MFR (2) is from 1.5 to 60;

the process comprising the following stages:

- 1) preparing the precursor polymer composition (B) by polymerising the monomers in one or more sequential stages, operating in each stage in the presence of the



polymer formed and the catalyst used in the preceding stage, and dosing a molecular weight regulator in such amounts as to obtain an MFR (2) value for the precursor polymer composition (B) of from 0.5 to 50 g/10 min; and

- 2) subjecting the precursor composition (B) obtained in stage (1) to a degradation treatment with a degradation ratio, in terms of ratio of MFR (1) to MFR (2), from 1.5 to 60.